

1. An aluminum metal-core weld wire for producing aluminum weld deposits, the weld wire comprising a sheath and a core, the sheath being aluminum or aluminum alloy and the core containing a composition which includes metal or metal alloy powders.

2. The aluminum weld wire of claim 1 wherein, in addition to aluminum, the wire contains in approximate weight percent:

| | |
|----|-------|
| Si | 0-15 |
| Cu | 0-7.0 |
| Mg | 0-6.0 |
| Mn | 0-1.5 |
| Ba | 0-0.5 |

3. The aluminum weld wire of claim 1 wherein, in addition to aluminum, the wire contains in approximate weight percent:

| | |
|----|-------|
| Si | 0-15 |
| Cu | 0-7.0 |
| Mg | 0-6.0 |
| Mn | 0-1.5 |

4. The aluminum weld wire of claim 1 wherein, in addition to aluminum, the wire contains in approximate weight percent:

| | |
|----|-------|
| Si | 0-15 |
| Cu | 0-7.0 |
| Mg | 0-6.0 |
| Ba | 0-0.5 |

5. The aluminum weld wire of claim 1 wherein the weld wire contains magnesium or silicon in an amount of at least 4% by weight of the wire.

6. The aluminum weld wire of claim 5 wherein, in addition to aluminum, the wire contains in approximate weight percent:

| | |
|----|----------|
| Si | 4.5-6.0 |
| Fe | 0.8 max. |
| Cu | 0.3 max. |

| | |
|----|-----------|
| Mn | 0.15 max. |
| Mg | 0.1 |
| Ti | 0.2 max. |

7. The weld wire of claim 5 wherein, in addition to aluminum, the wire contains in approximate weight percent:

| | |
|----|-----------|
| Si | 0.25 max. |
| Fe | 0.4 max. |
| Cu | 0.1 max. |
| Mn | 0.05-0.20 |
| Mg | 4.5-5.5 |
| Cr | 0.05-0.20 |
| Ti | 0.06-0.20 |

8. The aluminum weld wire of claim 1 wherein the sheath is formed from a 4000 or 5000 series aluminum alloy.

9. The aluminum weld wire of claim 8 wherein the sheath is formed from a 5052 or 5056 aluminum alloy.

10. The aluminum weld wire of claim 1 wherein the core composition has the following composition in approximate weight percent:

| | % |
|-----------|----------|
| Al powder | 0-100.00 |
| Si | 0-4.0 |
| Ca | 0-2.0 |
| Mn | 0-6.0 |
| Zr | 0-2.5 |
| Cr | 0-3.33 |
| Ti | 0-10 |
| Ba | 0-1.5 |

11. The aluminum weld wire of claim 1 wherein the core composition has the following composition in approximate weight percent:

| | % |
|-----------|----------|
| Al powder | 75-95.00 |
| Si | 0-4.0 |
| Ca | 0- 2.0 |

| | |
|----|--------|
| Mn | 0-1.60 |
| Zr | 0-1.00 |
| Cr | 0-.40 |
| Ti | 0-3.00 |
| Ba | 0-1.5 |

12. The aluminum weld wire of claim 1 wherein the core composition contains barium.
13. The aluminum weld wire of claim 10 wherein the core composition contains up to 1.5% barium.
14. The alumin unweld wire of claim 13 wherein the core composition contains a powder of a barium-containing alloy.
15. The aluminum weld wire of claim 14 wherein the barium-containing alloy is selected from the group consisting of BaSi or Cal SiBar.
16. The aluminum weld wire of claim 1 wherein the core composition contains MnN.
17. The aluminum weld wire of claim 16 wherein the core composition contains up to 6% MnN.
18. A method for manufacturing aluminum metal-core wire which comprises depositing a core composition onto a strip of aluminum, forming the strip of aluminum into a tube which contains the core composition, applying an inorganic lubricant to the surface of the tube, and drawing the tube through a plurality of reducing dies.
19. The method of claim 18 wherein the lubricant is molybdenum disulfide.
20. The method of claim 18 wherein the method includes the additional step of cleaning the surface of the tube with tetrachloroethylene.
21. The method of claim 18 wherein the method includes the additional step of drying the tube.

22. An aluminum tube useful in forming an aluminum metal-core wire which comprises an aluminum sheath containing a core composition therein, wherein the outer surface of the aluminum sheath is coated with an inorganic lubricant.

23. The aluminum tube of claim 22 wherein the lubricant is molybdenum disulfide.

24. A method for forming an aluminum weld which comprises applying a voltage to an aluminum metal-core wire in the vicinity of an aluminum work surface to generate an arc which melts the wire and the work surface and forms the weld.

25. An aluminum weld wire for producing aluminum weld deposits, the weld wire consisting of a tubular sheath of aluminum or aluminum alloy.

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